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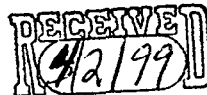FAX: (435) 797-2701

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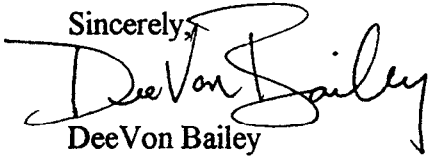Washington, DC 20250-3647

Dear Dr. Grinnell:

I have completed my review of the draft report, "Captive Supplies and Spot Market Prices for Fed Cattle in the Texas Panhandle" submitted by John Schroeter and Azzeddine Azzam to GIPSA. Based on my review, I believe the procedures used in the study are defensible and the results plausible. In my opinion the results indicate that captive supplies have had a fundamental impact on how cattle are priced and scheduled for slaughter. This suggests that price reporting by AMS needs to reflect this change as well as the possible reporting of anticipated deliveries of contracted cattle to packers. The report's discussion of formula pricing underscores the need for feeders to be able to reconstruct and verify the price they are paid. I believe packers need to give sufficient details of the formula to feeders so this can be done.

My one central criticism of the report is its lack of direct comparisons between the average price packers with captives supplies pay for cattle from all sources compared to packers with few captive supplies. The results may be construed to suggest that captive supplies offer a substantial advantage to packers while in fact little difference may exist in average prices paid.

I have made a number of detailed comments about the report which I have numbered on the report itself and which correspond to the comments below. I appreciate the opportunity to participate as a reviewer of this study. Please contact me if you need clarifications about my comments or have other specific questions.

Sincerely,

DeeVon Bailey
Professor and
  Extension Economist

Specific Comments on
"Captive Supplies and Spot Market Prices for Fed Cattle
in the Texas Panhandle"

1. While the magnitude of the price differences from the mean for individual plant spot market purchases is not large on a percentage basis it is significant in absolute terms in my opinion. If the proportion of captive supplies increases by 1%, a 1200 lb. steer brings $2.64/head less than if captive supplies remained constant. Given the volume of animals moving through this market, a 1% increase in the captive supply proportion of near-term purchases would result in a loss to cattle feeders of $12.34 million annually compared to the average spot market price. If the relationship is linear, which I doubt, a 10% increase in captive supplies would result in a potential loss of over $120 million annually ($0.22 * 10 * 12 cwt. * 4,672,800 head (total annual four-plant capacity)). This is very large and is difficult to accept outright since the proportion of captive supplies in the slaughter mix has been quite stable according to the report given in Washington DC by your Ft. Worth field office person. More on this will be presented in a later comment.

2. Based on #1 the results seem to lack enough theory (except in a very short-term sense (two-week window)) to explain what the incentives for contracting are both from the buyers and sellers points of view. Since the distribution of prices paid for captive supply cattle is not reported nor compared to prices paid in the spot market in the report, one can't determine if risks are reduced as a result of captive supplies. The small amount of information on comparisons between cash and non-cash prices is found in the Ft. Worth report on pp. 125-133 and doesn't appear to reveal any consistent difference in prices paid by the two methods. However, there is too little information there to know for certain what the price difference between captive supply cattle and spot market cattle is. Perhaps it is a quality and timing issue more than a pricing issue since there does appear to be some seasonality in inventories and the proportion of captive supplies in the slaughter mix varies substantially from week to week. This may be the best explanation given that prices appear to increase substantially as capacity utilization declines (p. 134 of Ft. Worth report). What is missing is the characteristics of the price distribution for spot market and contract market cattle.

   Since the results indicate lower prices in the spot market can be achieved by individual packers if their captive supplies are increased then why are captive supplies remaining a fairly stable percentage of purchases? It may be that packers end up paying more for contracted cattle thus offsetting the gain in the cash market and reducing the incentive to contract. Thus, captive supplies may be used only as a means of inventory management during periods of anticipated short supply or as a means to increase overall quality of cattle going through a plant. This would reduce the variability of average prices paid for all cattle at each plant. The author(s) need to give some attention to this. Otherwise it leaves open the question of why captive supplies are not increasing at a fast rate.

3. The concept of "less aggressive" bidding is a bit nebulous to me. If sufficient competition and capacity exist, packers will be forced to pay the same price as everyone else for the same quality of cattle or they will not be able to buy cattle. The idea may be that the threat point, the price at which the packer walks away from a deal, declines in these situations and as a result the packer may be able to drive a "harder" bargain. However, this would only be possible if no other packer with a higher value marginal product (VMP) for the cattle is placing a bid. That is, the argument appears to suggest packers with captive supplies will only buy cattle in the cash market if they can purchase at prices below their VMP while other packers without captive supplies are forced to pay their VMP. This makes sense since it indicates packers without captive supplies (bidding their VMP) will purchase more cattle than packers with captive supplies (bidding below their VMP to get "bargains"). The whole discussion about the level of aggressiveness is just a bit fuzzy to me from the point of economic theory.

This brings up the issue of exactly what the price distribution looks like. For example, does the empirical price distribution for an individual firm narrow, widen, and/or shift as captive supplies increase? This has implications not only for average prices but also for the risk feeders face selling in one market or the other. The report suggests that individual plants with captive supplies can place bids in the left side of the spot market price distribution. As suggested by the authors, It is possible that the mean of the spot price distribution will not change. As the volume of cash purchases by packers with captive supplies declines as a portion of the total spot market, it is possible that packers without captive supplies would buy a larger proportion of cattle offered in the spot market at higher prices than paid by packers with captive supplies. Thus, in theory the mean of the spot price distribution could remain constant. However, the distribution of prices around the mean could change. This suggests that the difference in spot market prices paid by firms with captive supplies and firms without captive supplies might be quite large if they are compared directly rather than against the mean (see #8).

It would be appropriate to examine the individual price distribution of cattle purchased by the four plants to determine if the mean and other moments of the average price distribution for all cattle purchases (both cash and non-cash combined) change as the amount of captive supply changes. The examination of the price distributions will be complicated by quality issues. However, the authors can correct for quality using the models presented in the report. It would also be of interest to know if the average quality of contract cattle is different than cash market cattle (again going to incentives for contracting).

4. The discussion of scheduling suggests incentives exist for feeders to have marketing agreements with packers rather than forward contracts since they have more control over scheduling. While I suspect little or no difference exists, can the relative price distributions for market agreement and forward contracted cattle be reported? This would provide information on the relative risks faced by feeders and packers using either of the two methods to price their cattle.

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5. Some discussion of market shares and market area would be appropriate at this point in the report. The data are available and a significant number of cattle are purchased outside the Texas Panhandle by the four plants. The four plants also have competition within the Texas Panhandle from outside packers.

6. While feeders trigger delivery decisions, packers apparently have discretion over how many cattle they will accept in marketing agreements. This again begs the question of the demand and supply of captive supplies since the reports discusses scheduling issues and the possible effects on prices. Also, as I examined Appendix B it seemed that most of the packers require from 8-14 days notice for delivery of marketing agreement cattle. This is a bit longer lag than the one-week suggested in the report.

7. If forward contracted cattle are purchased on basis contracts, even though they become fixed priced contracts, their relative cost depends on the basis offered in the contract and the basis at delivery since the packer probably hedges this risk. As long as the basis in the contract is weaker than the actual basis at delivery, the packer's net price for the cattle will be less than the spot market price. Consequently, what matters for basis contract cattle is the contract basis compared to the basis at the time of delivery not whether spot market prices are relatively high or low. If one assumes that the basis in the contracts is routinely weaker than the actual basis at delivery then the authors arguments about the scheduling incentives for market agreement cattle would also hold for forward contract cattle.

8. Following on the discussion from #1, the impact on the price distribution of increasing captive supplies is unclear. The report states that "With each 1% increase in captive supply proportion of a given plant's near-term future steer and heifer slaughter, the spot market prices paid by the plant will fall, on average, by somewhere between $0.18 and $0.22/cwt." This can be a large savings as indicated in #1. However, it may understate the actual savings since these figures are compared to the mean. If the mean of the distribution does not change, then those plants with relatively few captive supplies must be making relatively more purchases at prices above the mean. This suggests the difference between spot market prices paid by plants with a large captive supply and plants will small captive supply will actually be larger than the $0.18-$0.22/cwt. reported. If true this would place firms with a small captive supply at a large disadvantage. I suspect the relationship is not linear. That is, that increasing RATIO by 10 percentage points will not have a ten times greater impact on spot prices paid by these firms than increasing RATIO by 1 percentage point. Did the authors estimate the equation parameters with a quadratic term for RATIO? Also there appears to be seasonality in the proportion of captive supply. Should a correction be made for seasonality?

Again, what is the average price paid in the spot market and for cattle from all sources by firms with high numbers of contracted cattle and the average price paid by firms with few contracted cattle? This would give a clearer picture of the advantage captive supplies give in the spot market. The results suggest captive supplies will increase, but this is only true if the total

cost of all cattle procured decreases as captive supplies increase. I am not sure that is true, otherwise more contracting would be taking place in my opinion.

9. How accurate is the AMS price compared to what the plants actually paid in the spot market? Since they represent a large majority of spot purchases in the Texas Panhandle, the prices (AMS and four-plant spot prices) should be very close. I believe Warren Preston indicated during our meeting in Washington DC that the AMS price was about $0.13/cwt. higher than the spot market prices paid by the four plants. This should be reported since the results of Hypothesis 1 are generated as a comparison to the AMS price and suggest price differences between AMS price and spot prices for firms with captive supplies are less than reported in the study.

10. I have a question on the specification of equation (1). If the equation is specified using Q_t and RATIO together, then I believe they are defined as follows:

$$Q_t = a_t + b_t \text{ where}$$

a_t = captive supply deliveries in week t and

b_t = cash market deliveries in week t and

$$RATIO_t = \frac{a_t}{a_t + b_t} \,.$$

If this is the specification then a substantial amount of colinearity exits between these two variables. This may not be a problem but is suspect they are closely correlated.

11. Economists will recognize this as a problem with endogeneity. The authors may wish to simple say so in a footnote.

12. Empirically how many times were each of the packers in the high or low end of the distribution and when? The mean of the distribution is related to captive supplies as has been demonstrated in the report, but what is the distribution of price differences from the AMS price and what affects these differences besides captives supplies? For example, seasonality may be affecting this as may be the throughput in the plants. In general, other factors may have equally important influences as the amount of captive supplies but were not considered.
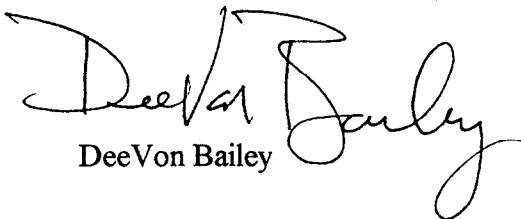
13. The authors have devised a plausible theory to explain the short-term negative relationship between spot market prices and the number of captive supply deliveries. I think this is important since it does point out that there are reasonable explanations for the relationship besides packers manipulating price. It is also important to couch this result in these terms, as the authors have, since some may believe it is a concocted explanation for what would otherwise be results shedding a negative light on packers. It will also be important to remind people that this explanation is based on a very short time frame (two weeks) and is based on incentives for scheduling cattle. It does not indicate what the long-term impact of captive supplies may be on the average spot market price.

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At the least, the results indicate that captive supplies have had a fundamental impact on how cattle are priced and scheduled for slaughter. This suggests that price reporting needs to reflect this change.

14. I found the discussion in this part of the report quite plausible since $E\left[\hat{p}_{t+1}\right]$ was estimated without captive supplies in the equation and is highly correlated with $E\left[p_{t+1}\right]$. This indicates that publicly available information can be used to generate the types of expectations needed to support the authors' theory of scheduling incentives. Some may not understand this well but it does offer a plausible though not conclusive explanation for why a negative correlation exists between spot prices and captive supplies. However, couldn't an equally convincing argument be made that feeders selling on the spot market would have the same information and would withhold cattle during weeks of anticipated "low" prices thus driving spot prices up so that no difference existed?

15. The authors may wish to qualify that the relationships investigated in the paper are short-run relationships since long-run equilibriums might mitigate the short-run effects as market participants have time to adjust to price signals. If true it suggests that market participants need to know the number of captive supply cattle anticipated to be delivered in the coming week. The principal question in my mind is the relative prices paid for captive supply cattle and spot market cattle and how transparent the markets for spot and contract cattle are. I think the report makes a strong case for price reporting of captive supply cattle and possibly anticipated deliveries of captive supplies.

16. The formulae are examples of problems with pricing transparencies in cattle markets. I agree with the authors that the "hot" pricing method has the greatest possibility for abuse by packers. While no significant regression coefficients are found for equation (4) they are mostly negative and some have fairly high "p" values. The feeder needs no know what the "hot" cost is and the characteristics of the cattle he is competing against. Otherwise the price signals could be quite convoluted. Also, I have heard some say it is sometimes difficult if not impossible to reconstruct prices from some of the formulae used in pricing fed cattle. At the least, feeders need a detailed explanation of how the price was formulated for the cattle they sell so that the price can be verified by the feeder.

DeeVon Bailey   4/1/99